

### **REMARKS**

Claims 1-10 are pending and under consideration in the present application.

#### **Preliminary Issues**

Applicants submit that in Examiner's "Notice to the applicant regarding a Non-Compliant Amendment" dated May 6, 2008, on page 2 item number 1, the statement "Claims 1-11 of US Application 10/445,695, filed 5/27/2003, are pending" is inaccurate with regard to: the number of claims pending in the application, the application serial number, and the filing date. Clarification is requested.

#### **Applicant Interview Summary**

Applicants note in the file that a telephone interview with the previous attorney of record, Marina E. Volin, and the Examiner was conducted on November 13, 2007, beginning at approximately 2:49 PM EST. The substance of the verbal communications occurring during this telephone interview are not known to the present attorney of record, but – to the best of the knowledge of the present attorney – within about a half hour of the initiation of this telephone interview, a series of email exchanges between the Examiner and the previous attorney of record, Marian E. Volin, ensued and continued over about the next two weeks. A summary of the those emails about which present attorney of record is aware, that contain substance with regard to the merits of the application are summarized herein below.

Applicants note that the previous attorney of record, Marina E. Volin, submitted to the Examiner via email on November 13, 2007, at approximately 3:17 PM EST, a proposed amendment, in which a variety of proposed potential claim amendments were suggested.

Applicants note that the previous attorney of record, Marina E. Volin, submitted to the Examiner an email on November 26, 2007, at approximately 11:05 AM EST, requesting comment from the Examiner concerning the previously submitted proposed amendment.

Applicants note that the Examiner sent the previous attorney of record, Marina E. Volin, an email on November 27, 2007, at approximately 7:25 PM EST, which stated:

"Hi,

My thoughts:

1) Not comfortable with the use of "optional" in the claims.

- 2) claims need to take into account teaches of (IDS)
  - solid freeform fabrication of organic-inorganic hybrid material (see calvert)
  - pg. 25 of landers et al. (desktop manufacturing ...)
  - pg. 4447 (col. 1) of landers et al. (rapid prototyping...)"

Applicants note that the previous attorney of record, Marina E. Volin, submitted to the Examiner an email on November 27, 2007, at approximately 10:01 PM EST, which stated:

"Hi,  
1) the term "optional" is removed to make a dependent claim 11.  
2) Many proteins undergo denaturation when heated over 50-60 degrees Celsius, therefore procedures described by Calvert are not compatible with simultaneous deposition of cells since they teach depositing materials are their melting temperatures (e.g., Calvert :60 degrees C, p169, section 2.3).  
I will get back to you on Landers references tomorrow morning after I get the inventors input.  
It appears that these references do not describe how to deposit cells in any of the given examples and seed the constructs with cells after the constructs have been made; the references just discuss possibilities without details. The inventors describe mimicking a body part by precise spatial positioning and ratio. I highlight the parts of claim 1 and 10 which I believe distinguish from the cited at. What are your thoughts?  
Thank you!"

Applicants note that the previous attorney of record, Marina E. Volin, submitted to the Examiner an email on November 28, 2007, at approximately 3:43 PM EST, which stated:

"Dear Mr. Jones,  
Are you available to discuss this matter today?  
I am not sure what my next step should be and today is 2 month extension deadline for response.  
Please let me know.  
Thank you!"

Applicants note that the Examiner sent the previous attorney of record, Marina E. Volin, an email on November 28, 2007, at approximately 4:59 PM EST, which stated:

"Sorry, I can't advise what to, I can only give you my impression of the art and claim structure.  
We usually give only one interview. I have also reviewed your IDS and given my opinion, which I don't normally do prior to an action.

If I think we are close to agreement after your response, we can maybe have another interview at that time.”

Applicants note that the previous attorney of record, Marina E. Volin, submitted to the Examiner an email on November 28, 2007, at approximately 5:03 PM EST, which stated:

“I am just not sure how to structure my response. Should my response to the first office Action include the discussion of the new references you cited?”

Applicants note that the Examiner sent the previous attorney of record, Marina E. Volin, an email on November 28, 2007, at approximately 5:06 PM EST, which stated:

“I would, in the context of responding to the interview.”

From the foregoing email communications, Applicants are of the understanding that:

1) apparently each of the ten pending claims were discussed at some point during the telephone interview and the subsequent emails, and

2) apparently several potential claim amendments were proposed and discussed, and

3) apparently three references (i.e., Landers et al., Landers et al., and Calvert et al. - all of which references are listed on an Information Disclosure Statement filed October 26, 2007, which has not yet been initialed by Examiner, and all of which references are cited in the Background section of the as-filed specification) were raised by Examiner and discussed, and

4) no agreement was reached between Examiner and former counsel concerning any proposed potential claim amendment or concerning the importance of any of the three references raised by Examiner, neither during the telephone interview on November 13, 2007, nor during the subsequent email communications.

Applicants hereby invite the Examiner to provide any other communications of substance that Examiner had with former counsel, Marina E. Volin, and which have not been included in the Applicant-provided interview summary herein.

Applicants note further that in the “Notice to the applicant regarding a Non-Compliant Amendment” dated May 6, 2008, Examiner states that Examiner “clearly conveyed to Applicants, during the interview, that the claims would be subject to 103 rejections based upon

the submitted references.” Applicants note that the only rejection of record is that of Teoh et al. (U.S. Patent No. 6,730,252) which is alleged to be anticipatory under 35 U.S.C § 102(e), and which rejection is addressed herein below.

Applicants note further that nowhere in the publicly available image file wrapper is there a record that Applicant provided written authorization to conduct email communications with Examiner, as is required according to MPEP 502.03. Applicants hereby declare that email communications between Examiner and Applicant are NOT authorized in this application, and to the extent that such authorization was assumed, such authorization is hereby withdrawn.

#### **Information Disclosure Statement**

An Information Disclosure Statement and Form PTO/SB/08 was filed in the Application on October 26, 2007. Applicants would appreciate receiving an Examiner initialed copy of the Form PTO/SB/08 as soon as possible.

#### **Amendments to the Claims**

Applicants have amended claim 1 to recite “multiple.” Support for this amendment can be found throughout the specification, for example, at page 14, beginning line 12. Applicants have amended claim 10 to recite “for simultaneously depositing.” Support for this amendment can be found throughout the specification, for example, at page 14, beginning line 12. No new matter has been added by way of the present amendments.

#### **Rejection of claims 1-10 under 35 USC § 102(e)**

The Examiner rejected claims 1-10 under 35 USC § 102(e) as anticipated by Teoh et al. (U.S. Patent No. 6,730,252; hereinafter “Teoh”). Specifically, the Examiner asserts that Teoh discloses a process for manufacturing complex parts and devices comprising utilizing a CAD environment to design a part or device to be created, converting the CAD designed part or device into a heterogeneous material and multi-part assembly model which can be used for multi-nozzle printing, and printing the designed part or device using different, specialized nozzles. Further, the Examiner asserts that Teoh discloses a multi-nozzle biopolymer deposition apparatus comprising a data processing system which processes a designed scaffold model and

converts it into a layered process tool path, a motion control system driven by the layered process tool path, and a material delivery system comprising multiple nozzles of different types and sizes which deposits specified hydrogels with different viscosities thereby constructing a scaffold from the designed scaffold model.

While not necessarily agreeing with the Examiner's reasoning, but rather in a good faith effort to expedite prosecution of the present application, Applicants have amended claim 1, from which claims 2-9 depend, to recite "multiple." Moreover, while not necessarily agreeing with the Examiner's reasoning, but rather in a good faith effort to expedite prosecution of the present application, Applicants have amended claim 10 to recite "for simultaneously depositing." The present amendments are supported throughout the specification as filed, for example, at page 14, beginning line 12.

Applicants respectfully submit that Teoh does not anticipate presently amended claims 1-10 of invention for the following reasons. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 (quoting *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Id.* (quoting *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (emphasis added)). Therefore, Teoh must describe each and every element of the rejected claims in order to anticipate this claim under 35 U.S.C. §102(e). This reference does not satisfy this requirement.

Teoh does not anticipate presently amended claims 1, 10, or claims 2-9 which depend from claim 1. Teoh does not disclose or contemplate a "*multi-nozzle* biopolymer deposition apparatus . . . comprising multiple nozzles of different types and sizes for simultaneously depositing." (*emphasis added*) Similarly, Teoh does not disclose or contemplate a process involving "*multi-nozzle* printing; and (c) printing the designed part or device using multiple, different, specialized nozzles." (*emphasis added*)

The Examiner cites Teoh at column 4, lines 54-57 and column 10, Table 1, to support the Examiner's assertion that Teoh discloses an apparatus and a process which uses "more than one nozzle" (present office action, page 2). Applicants respectfully submit that this interpretation of Teoh is incorrect. At column 4, lines 54-57, cited by Examiner, Teoh discusses,

in its Background section, a method known as 3DP and states, in the singular, that the 3DP “technology is based on the printing of a binder through a print head nozzle” (*emphasis* added). Nothing in Teoh’s description of 3DP discloses or contemplates the use of multi-nozzle or multiple, different, specialized nozzles. Moreover, at column 10, Table 1, cited by Examiner, Teoh provides a table which discloses that the print nozzle of the invention of Teoh may be a nozzle having a size ranging between “0.010 and 0.016” inches. Applicants respectfully submit that column 10, Table 1 discloses only that the nozzle of Teoh may be of any size ranging between 0.010 and 0.016 inches, but that Teoh does not disclose or contemplate that the invention of Teoh could utilize more than one of these differently size nozzles at any one time. Applicants further submit that Teoh uses the term nozzle elsewhere in the disclosure and consistently uses the term nozzle in the singular, indicating that only one nozzle is used at any one time. (See, for example, column 5, beginning line 27; column 8, beginning line 48, describing Figure 2; column 10, beginning line 43). Nowhere in Teoh is it disclosed or contemplated that more than one nozzle is employed in the apparatus and process disclosed by Teoh at any one time and thus, Teoh cannot anticipate presently amended claims 1, 10, or claims 2-9 which depend from claim 1.

In light of the present amendments and arguments, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-10 under 35 U.S.C. § 102(e).

**Summary**

Applicants respectfully submit that the amendments made to the claims and the specification herein do not introduce new matter, and that the arguments set forth herein evidence that the pending claims are in full condition for allowance. Accordingly, favorable examination of the claims is respectfully requested at the earliest possible time.

Respectfully submitted,

**WEI SUN, *ET AL.***

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